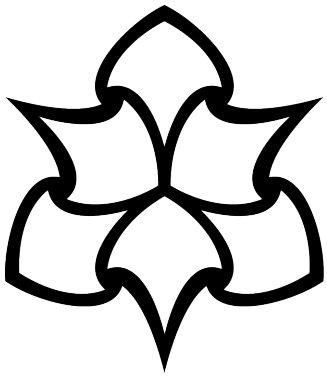

This is a post-peer-review, pre-copyedit version of an article published in *The Journal of Mental Health Training, Education and Practice.* The final authenticated version is available online at: DOI: 10.1108/JMHTEP-01-2019-0001

Evaluating Mental Health Literacy in Medical Students in the United Kingdom

Abstract

Purpose: There is urgent need to explore medical students' understandings of mental illness to better support this high-risk group. This study aimed to evaluate mental health literacy in medical students using the Mental Health Literacy Scale (MHLS) and provide validation of the measure.

Methodology: 251 participants were recruited from medical schools across the U.K. Participants completed demographic details and the MHLS. This paper reports total MHLS scores and their relationships with demographics and experiences with mental illness.

Findings: The mean MHLS score was 127.69. MHL was significantly higher in females, and students in later years of study ($p < .05$). Over 40% of respondents reported having personal experience of mental illness. This, as well as having a close friend or family member with a mental illness, was associated with higher MHL ($p < .05$).

Originality: This study presents the first to use the MHLS and provide validation of this measure in medical students. Despite high rates of personal experience with mental health issues, medical students' average MHLS scores were comparable to studies of non-medical student groups. Medical schools should aim to build students' confidence in recognizing and seeking help for mental health issues from the first year of medical training. MHL is a multifaceted issue; further work is required to improve awareness of risk factors, to better understand why males demonstrate poorer MHL scores than females, and to work towards improving MHL in males.

Keywords: mental health; medical training; stigma; health promotion

Introduction

Mental Health in Medical Students

The mental health of medical students has been highlighted as an issue of significant concern (Karp & Levine, 2018; Kothari, George & Hamid, 2018; Munn, 2017), with the British Medical Association calling for a review of mental health support provided to medical students (Coombes, 2018). Medical students have higher rates of mental illness (Chew-Graham *et al.*, 2003; Dyrbye *et al.*, 2006) and burnout (Lyndon, 2017) than the general population. A recent meta-analysis demonstrated that 28% of medical students are affected by depression (Puthran *et al.*, 2016), whilst approximately 11% report suicidal ideation (Rotenstein *et al*., 2016).

The reasons behind medical students increased vulnerability are multi-faceted. Moir et al., (2018) identify numerous factors—including selection, student characteristic and assessments—as potential vulnerability factors. Indeed, medical students are exposed to significant academic, clinical and financial stressors. Unlike non-medical undergraduate students, however, medical students' mental health occurs in the context of obligations for self-care and disclosure in their role as future health care professionals (GMC, 2013; RCPsych, 2011). There are a number of myths surrounding mental health and fitness to practice that may discourage help-seeking amongst medical students (GMC, 2017; Kothari, George & Hamid, 2018), thereby highlighting the need to understand medical student's knowledge of mental health.

Factors that may impede medical student help-seeking in the context of mental health include perceived stigmatisation of mental illness amongst their student bodies (Chew-Graham *et al.*, 2003; Pascucci *et al.*, 2016). Indeed, medical students report that they are likely to avoid or delay help-seeking and not disclose their own history of mental illness over concerns about perceived competence (Rodriguez *et al.*, 2017). However, it remains unclear

whether this is mediated by lack of knowledge (Kutcher *et al.*, 2016) or social contact with others with mental illness (Knaak *et al.*, 2014), which may lead to misunderstandings surrounding mental health, and reinforcement of stigma and avoidance behaviour. This indicates a need to understand factors that drive student behaviour, including assessing knowledge and beliefs surrounding mental health.

Mental Health Literacy

Mental health literacy (MHL) was originally defined as 'knowledge and beliefs about mental disorders which aid their recognition, management or prevention' (Jorm *et al.*, 1997). The concept has since been further developed to include concepts relating to positive mental health promotion and stigma reduction (Kutcher *et al.*, 2016). MHL is more comprehensive than simply mental health awareness, and measures of MHL assess varying dimensions, such as knowledge, recognition, attitudes, and beliefs.

There is a paucity of research into MHL in medical students. MHL research into recognition of disorders has relied on vignette studies (Cheslock, 2005), which have significant limitations (Kutcher *et al.*, 2016; O'Connor *et al.*, 2014). O'Connor and Casey (2015) developed a 35-item Mental Health Literacy Scale (MHLS) that encapsulates aspects from a number of previous research tools used to evaluate the core concepts of MHL. Gorczynski and colleagues (2017) utilised the MHLS in their study of undergraduate students in the United Kingdom (U.K.), however, no study to date has focused specifically on medical students using the MHLS, despite their high risk. The aim of this paper, therefore, is to report the total MHL scores of medical students as well as the relationship between this and demographic variables, previous experiences with mental illness and condition recognition.

Methods

Design

This was a cross-sectional study of MHL in medical students, including questionnaire validation in this population. Ethical approval was obtained from the University of [anonymised for peer review] School of Science and Medicine Ethics Committee.

Participants

Eligible participants were recruited from eight medical schools across the U.K. Questionnaires were distributed in class at The University of [Anonymised for peer review]. Data from all other medical schools were collected via an email invitation and online survey. Participants were required to be over 18 years of age (no upper age limit) and currently enrolled on an undergraduate medical training degree. No extra credit or compensation was offered for participation. Recruitment ran from August 2017 to May 2018.

Measures

Demographics: The demographic questionnaire contained five items pertaining to gender, age, ethnicity, sexual orientation, year of study, and highest level of education.

The Mental Health Literacy Scale (MHLS; O'Connor & Casey, 2015): The MHLS contains 35 Likert scale items relating to knowledge of where to seek information relating to mental health (4), risk factors and causes of mental health problems (2), self-treatment (2) and professional help available (3). Further items relate to recognition of disorders (8) and attitudes that promote recognition or appropriate help-seeking behaviour (16). As done in previous work (Gorczynski *et al.*, 2017), two items on the scale were modified to reference the U.K., rather than Australia (items 9 and 10). The measure is scored between 35–160, with higher scores indicating a higher level of MHL. The scale has excellent content and structural validity (Wei *et al.*, 2015) and has

been shown to have good internal consistency (α = .873) and test-retest reliability (O'Connor & Casey, 2015). Reliability has also been established in a UK student sample (α = .839; Gorczynski *et al.*, 2017) and the present study (α = .842).

Experience with Mental Illness: The mental health experiences questionnaire contained five items pertaining to individual experiences of mental illness, professional diagnoses, and treatment, as well as mental illness in close friends or family members or through work experiences. Participants were not provided a definition of "mental illness" but instead data collection relied on their own understanding of the term.

Statistical Methods

Data were analysed using SPSS version 24. Data were initially examined for distribution normality and outliers. Means and standard deviations were calculated for demographic data, and total scores calculated for the MHLS. Pearson correlations and one-way analysis of variance (ANOVA) were used to examine relationships between variables and MHLS scores, with an alpha of .05 used for all analyses.

Results

A total of 271 students participated in the study. Twenty participants, who had greater than 5% of survey items incomplete, were excluded from analysis. Therefore 251 participants were included in the final analysis. Eight missing values from MHLS items from 7 participants were imputed using linear interpolation.

Demographics

A total of 83 men (33.1%) and 168 women (66.9%) participated in the study. The mean age of participants was 21.52 years (SD = 3.18, Range 18 – 39). The majority of participants self-identified as heterosexual (84.3%) and approximately half were in their first year of study (49.8%). The majority (73.7%) listed A Levels as their highest level of prior educational achievement. Complete demographic information and mean MHLS scores attributable to each demographic is presented in Table 1.

INSERT TABLE 1 HERE

MHLS Scores

The combined mean score on the MHLS was 127.69 (SD = 11.82, 95% CI 126.13–129.11). Table 2 presents the scores in the present sample compared with those of other studies, demonstrating that medical students' scores were comparable to non-medical student samples. Females had significantly higher mean MHL than males ($F(1, 249) = 9.1$, $p = .003$). Mental health literacy scores increased steadily with year of study, with scores significantly higher in sixth year compared to first year students ($F(5, 245) = 5.24$, $p < .001$). A significant difference in mean MHL ratings was found between participants from different ethnic backgrounds ($F(4, 160) = 6.54$, $p < .001$), with the highest scores attained by participants who identified as White/White British and Asian/Asian British. Participants who identified as Black/Black

British had a significantly lower mean MHLS scores than participants from other ethnic backgrounds, though it should be noted the sample size for this group was small. There were no significant differences in mean MHL across the various levels of previous education ($F(3, 247) = 0.45$, $p = 0.718$), nor across sexual orientation ($F(4, 161) = 1.4$, $p = 0.228$).

INSERT TABLE 2 HERE

Scores Across MHLS Domains

Mean proportion of correct answers across each of the assessment domains was assessed (see Tables 3 and 4), and revealed that medical students were most competent in their abilities to recognize disorders and had attitudes that promoted recognition or appropriate help-seeking behaviour. Participants were weakest in their knowledge of risk factors and causes of mental health issues, and in their knowledge of self-treatment. There was a statistically significant difference in mean scores between male and female participants, with females scoring higher on domains one (recognition of disorders; $F(1,249) = 5.76$, $p = .017$), five (knowledge of professional help available; $F(1,249) = 9.1$, $p = .003$), and six (attitudes; $F(1,249) = 8.5$, $p = .004$). There was a statistically significant difference in mean scores by year of study in domains one ($F(5,245) = 3.3$, $p = .007$), two (Knowledge of where to seek information; $F(5,245) = 3.9$, $p = .002$), and six ($F(5,245) = 2.785$, $p = .018$), indicating that participants in later years of study were stronger in these domains. Only mean scores in domain three, knowledge of risk factors and causes, varied between groups by level of prior education ($F(3,247) = 3.21$, $p = .050$), with previous postgraduate students scoring the highest mean on these items and A Level entry students the lowest. Participants from different ethnic backgrounds only varied significantly on domain six, pertaining to attitudes about mental health ($F(4,160) = 6.71$, $p = .000$).

INSERT TABLE 3 HERE

INSERT TABLE 4 HERE

Experience with Mental Illness

Details of MHLS scores across experiences with mental illness are provided in Table 5. The majority of participants (75.7%) indicated that a close friend or family member had experienced a mental illness. Respondents who indicated they had a close friend or family member with a mental illness had significantly higher MHL ratings than those who did not ($F(1,246) = 38.37$, $p < .001$). Just over half of respondents (56.6%) had worked with patients with mental illness in the past, and their MHL scores were significantly higher than those who had not ($F(1, 245) = 7.669$, $p = 0.006$).

A larger proportion of females (45.7%) than males (40.3%) indicated they had personally experienced a mental illness. Participants who indicated they had personally experienced a mental illness (42.2% overall) had significantly higher MHL scores than those who had not ($F(1,245) = 16.1$, $p < .001$). However, those who reported having been professionally diagnosed with a mental illness did not differ in their MHL scores compared with those who had not been diagnosed ($F(1,246) = 0.017$, $p = 0.897$). Participants who had undergone treatment for mental illness had significantly higher MHL scores than those who had not ($F(1,242) = 34.83$, $p < .001$).

INSERT TABLE 5 HERE

Condition Recognition

Rates of disorder recognition are shown in Table 6. Disorders with the highest rates of recognition included Generalized Anxiety Disorder, Bipolar Disorder, and Drug Dependence. Dysthymia was the least well recognised condition. Over half of participants (58.5%) correctly

indicated that in the U.K., women are more likely to experience a mental illness compared to men. A minority of participants (31.5%), however, correctly indicated that in the U.K., men are more likely to experience an anxiety disorder compared to women.

INSERT TABLE 6 HERE

Discussion

This study aimed to explore levels of mental health literacy among medical students and to explore whether this is related to demographic characteristics or prior experiences with mental illness. Overall, the mean MHLS score for medical students was comparable to previous studies of different student groups. It is perhaps unsurprising, given the nature of medical training, that MHL scores and knowledge of disorders and information sources increased with years of study. It is a good indicator that students in a higher year of study had significantly higher scores on overall attitudes towards mental health, though variation within the domain of attitudes requires further study to address stigmatization and improve help-seeking in this population.

Gender differences in MHL are a complex issue and more research is required to specifically address why females have higher rates of MHL. This study demonstrated that females have better knowledge of disorders and help-available, as well as more positive attitudes, than their male peers. Whether this is due to females increased likelihood of experiencing mental health issues (Boyd *et al.,* 2015), or more positive attitudes towards psychiatry as a subject (Kuhnigk *et al.*, 2007) is unknown. Further research is also required to identify evidence-based methods of improving MHL amongst male medical students, particularly given the fact that male higher education students have a significantly higher rate of suicide compared with female students (Office of National Statistics, 2018).

Experiences with Mental Illness

This study supports previous research (Furnham *et al.*, 2011; O'Connor & Casey, 2015) which has found that individuals who have greater direct or indirect experience with mental illness have significantly greater levels of mental health literacy. Again, this is perhaps unsurprising

given that the exposure (whether personal or through others) to mental health issues will have led to an increased understanding of their symptoms, impact, and management.

A key finding in this study was that almost half of respondents indicated that they had experienced a mental health issue previously, a rate twice as high as the national average in the U.K. (McManus *et al.*, 2009). Whilst this finding may have predisposed students to interests in mental health and the study of medicine (and by extension, increased levels of MHL), this is also supportive of previous suggestions, which serves to highlight the increased risk and importance of managing distress in this population.

Condition Recognition

Medical students' recognition of common mental health conditions was high, indicating good knowledge of the symptoms of such conditions. This is likely due to their specific medical training, and is supported by their consistently better ability to correctly recognise conditions such as Generalized Anxiety Disorder and Drug Dependence compared to previous non-medical student samples (Gorczynski *et al.*, 2017).

Recognition rates of Major Depressive Disorder were comparable to previous studies, potentially due to depression being the most common mental health problem and second top cause of global burden of disease (Vigo *et al.*, 2016). As a result of this, increased efforts have been made to promote awareness of depression in the general population that may have increased recognition across the general population. Additional research should address the question of whether improved recognition of mental illness in patients is correlated with self-recognition and help-seeking amongst distressed medical students.

Limitations and Future Research

This is the first study to examine mental health literacy in U.K. medical students, which are comparable to other university students' MHL scores. Medical students did demonstrate superior abilities to recognise mental health conditions based on descriptions of their symptoms, however, further work is required to understand whether such increased recognition translates into better management of one's own mental health, and that of patients. Interventions to empower medical students to be able to use their knowledge to effectively manage mental health issues will likely help to improve clinical outcomes of the patients they will serve in future.

The cross-sectional design of the present study limits the ability to draw conclusions on causality, particularly between previous exposure to mental illness and current MHL scores. Given the stigmatizing perceptions of mental health in medical students (Chew-Graham *et al.*, 2003; Pascucci *et al.,* 2016), it is possible that participants may have underreported having previous personal experience of mental ill-health. On the other hand, some participants may have felt more confident in disclosing their experiences in an anonymous questionnaire study. It would be of value to determine whether exposure increases MHL, or whether MHL scores increased prior recognition of mental illness in oneself and others, as well as to explore the role of stigmatizing views on disclosure of prior experience of mental illness. The analysis would also be strengthened by a larger sample of data from medical students in higher years of study, as a large proportion of the sample was comprised of students in their first year of medical school. Similarly, work is required to better understand the relationship between gender and MHL, and how this translates into help-seeking and disclosure behaviour. This would be useful to inform interventions to improve MHL.

Conclusion

Medical students are an important population in which MHL should be evaluated, as MHL may impact medical students' ability to care for themselves and patients. This study provides rationale for further study of MHL in medical students, such that we can better understand the causes of student distress, and the potential adverse personal and professional consequences that this may have, as well as how MHL can be improved to better improve medical student wellbeing and patient outcomes. This research should be used to guide the development of evidence-based MHL interventions. Further detailed assessment of MHL in medical students and how it translates to behaviour would provide insight into which aspects of MHL need to be addressed to most effectively decrease stigma, increase help-seeking and treatment access as well as improve patient care.

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Table 1. Sample demographic details and mean MHLS scores.

	N	Percentage	Mean MHLS	SD
Overall	251	100.0%	127.6	
Year of Study				
First year	125	49.8%	125.0	12.1
Second year	53	21.1%	126.4	12.1
Third year	27	10.8%	131.9	7.8
Fourth year	29	11.6%	133.5	9.2
Fifth year	14	5.6%	135.1	11.4
Sixth year	3	1.2%	135.0	9.5
Previous Education				
A Level	185	73.7%	128.1	11.5
Undergraduate	46	18.3%	127.3	12.2
Postgraduate	17	6.8%	125.0	14.7
Professional	3	1.2%	124.7	8.6
Gender				
Male	83	33.1%	124.5	12.6
Female	168	66.9%	129.2	11.1
Sexual Orientation				
Heterosexual	140	84.3%	129.6	21.9
Bisexual	17	10.2%	133.8	9.7
Gay	6	3.6%	136.0	5.7
Lesbian	1	0.6%	142.0	.
Other	2	1.2%	131.5	21.9
Ethnicity				
White/White British	92	55.8%	133.0	9.0
Asian/Asian British	51	30.9%	129.0	11.4
Black/Black British	8	4.8%	117.0	9.9
Mixed Race	7	4.2%	128.0	9.3
Other	7	4.2%	123.6	6.1

Table 2. Mean MHLS scores across studies and populations.

	N	MHLS score	SD	Range	CI	Population
Present study	251	127.7	11.8	90 - 153	126.2 - 129.2	Medical Students United Kingdom
O'Connor & Casey (2015)	372	127.4	12.6	92 - 155	126.1 - 128.7	Undergraduate Students, Australia
Gorczynski et al. (2017)	380	122.8	12.1	87 - 16	121.6 - 124.1	Non-medical university students in United Kingdom

Table 3. Points achieved across domains in the MHLS.

	Max Possible Points	Mean Points Achieved	Percentage of Correct Points
1: Ability to recognise disorders (Q1-8)	32	26.3	82.2%
2: Knowledge of where to seek information (Q16-19)	20	15.6	78%
3: Knowledge of risk factors and causes (Q9-10)	8	4.9	61.3%
4: Knowledge of self-treatment (Q11-12)	8	5.4	67.5%
5: Knowledge of professional help available (Q13-15)	12	9.0	75%
6: Attitudes that promote recognition or appropriate help-seeking behavior (Q20-35)	80	66.5	83.1%

Table 4. Demographics variation across mean domain scores in the MHLS.

	N	%	Domain 1 (Max 32)	Domain 2 (Max 20)	Domain 3 (Max 8)	Domain 4 (Max 8)	Domain 5 (Max 12)	Domain 6 (Max 80)
Overall	251	100.0%	26.3	15.6	4.9	5.4	9.0	66.5
Year of Study								
First year	125	49.8%	25.66	14.96	4.89	5.47	8.79	65.23
Second year	53	21.1%	26.23	15.11	5.17	5.38	9.11	65.38
Third year	27	10.8%	27.48	16.67	4.67	5.56	9.22	68.26
Fourth year	29	11.6%	27.21	16.72	4.72	5.34	9.31	70.17
Fifth year	14	5.6%	27.11	17.71	5.43	5.57	9.21	70.07
Sixth year	3	1.2%	27.00	15.67	4.67	4.67	8.67	74.33
Gender								
Male	83	33.1%	25.65	15.87	4.77	5.37	8.70	64.18
Female	168	66.9%	26.55	15.39	5.01	5.48	9.13	67.69
Previous Education								
A Level	185	73.7%	26.21	15.59	4.84	5.38	9.00	67.09
Undergraduate	46	18.3%	26.32	14.59	5.11	5.57	8.93	65.67
Postgraduate	17	6.8%	26.41	14.59	5.53	5.71	8.88	63.88
Professional	3	1.2%	27.00	16.67	4.67	5.67	9.67	61.00
Ethnicity								
White/White British	92	55.8%	26.75	15.98	4.64	5.33	9.11	71.27
Asian/Asian British	51	30.9%	26.47	15.47	5.08	5.65	9.16	67.22
Black/Black British	8	4.8%	25.13	13.00	4.63	5.38	8.38	60.50
Mixed Race	7	4.2%	26.71	15.86	5.00	5.57	9.71	65.14
Other	7	4.2%	26.14	15.14	5.29	5.00	9.07	63.00

Table 5. Mean MHLS scores across previous experiences with mental illness.

		N	Percentage	MHLS	SD	Range	CI
Have any of your close friends or family members experienced a mental illness?	Yes	190	75.69%	130.33	10.94	90 - 152	128.73 - 131.93
	No	58	23.11%	119.93	11.16	95 - 153	116.97 - 122.89
	No Response	3	1.20%				
Have you ever experienced a mental illness?	Yes	106	42.23%	131.08	10.47	102 - 152	129.05 - 133.11
	No	141	56.17%	125.31	12.25	90 – 153	123.22 – 127.41

	No Response	4	1.59%				
Have you ever been professionally diagnosed with a mental illness?	Yes	86	34.26%	127.76	13.22	92 - 149	124.89 - 130.63
	No	162	64.54 %	127.89	11.06	90 - 153	126.14 - 129.65
	No Response	4	1.59%				
Have you ever undergone treatment for a mental illness?	Yes	55	21.91%	135.39	8.81	104 - 149	132.99 - 137.79
	No	189	75.30%	125.65	11.72	90 - 153	123.95 - 127.35
	No Response	7	2.79%				
Have you ever worked with patients with mental illness in the past?	Yes	142	56.57%	129.57	12.05	90 - 153	127.54 - 131.61
	No	105	41.83%	125.53	11.18	95 - 149	123.33 - 127.73
	No Response	4	1.59%				

Table 6. Recognition rates of common mental health conditions.

Mental Health Condition	**Correct Recognition Rate**
Generalized Anxiety Disorder	95.2%
Bipolar Disorder	94.0%
Drug Dependence	92.8%
Major Depressive Disorder	74.5%
Agoraphobia	81.3%
Dysthymia	84.9%